Urbanism in Evolution: New Urbanism and Beyond

Stephen Marshall

ABSTRACT
This paper outlines an evolutionary interpretation of urbanism, and suggests how an evolutionary perspective can articulate some of the challenges faced by New Urbanism. The paper first suggests that although a city may be 'organic', this does *not* mean that a city is an organism; however, a city *can* usefully be interpreted in evolutionary terms. The paper goes on to discuss how we can learn from the evolutionary nature of urbanism, and direct attention and application towards New Urbanism, and beyond

HAD NATURAL HISTORY turned out differently, Earth might have been 'urbanised' by smartly dressed bipeds descended from social dinosaurs. Evolutionary history teaches us that there is no single direction identifiable with progress; changes can go in any direction, according to context; there is no optimal form knowable in advance; no foreseeable destination. What is 'good' is relative, contingent and uncertain. In a sense, nineteenth century Darwinism gave us all the 'relativity' and 'uncertainty' that any postmodern theory might need to challenge the 'universal truths' of Modernism.

While it is easy to be critical of Modernism, there is no point in hauling down the whole Modernist edifice – trashing its rationality and trampling on its aspiration – if there is nothing viable to put up in its place. New Urbanism, at least, is not merely a critique of Modernism but actually offers a definite and constructive alternative – an alternative that is now subject to critical scrutiny, the more definite and more constructed it becomes.

New Urbanism is in fact a blend of modern, rational idealism and traditionalism, that may be identified more generally with neo-traditionalism. Neo-traditionalism may be regarded as the philosophy of adapting traditional urbanism to meet contemporary needs.

traditionalism, but for being *functional*. That is, neo-traditional urbanism's porches and pitched roofs and courtyards and streets with shops and public transport can be regarded as being desirable because – to the and blasted asphalt of the Modernist landscape.

Neo-traditional urbanism is functional not least because it is based on inherited viable precedents – both in terms of urban formats and professional practices – that are adapted to a particular time and place. Indeed, this neo-traditional combination of tradition and innovation and adaptation has a direct resonance with what we identify in nature as *evolution*.

This essay argues that it is useful to understand urbanism in evolutionary terms, and suggests how an evolutionary perspective can articulate some of the challenges faced by New Urbanism. Here, we first interpret the organic and evolutionary nature of cities – outlining some arguments that are more fully elaborated in the author's work elsewhere[1] – before directing attention and application towards New Urbanism, and beyond.

A city is not an organism

A city may be 'organic', but this does not mean it is an organism. A city is not corporate: it is not a finite, self-contained whole, constituted by parts that support the functioning of the whole, such that that the purposes of the parts are subordinate to the purposes of the whole. Also, a city is not in equilibrium: it does not have an optimal 'balanced' state, which it must maintain in the face of change. Finally, a city is not developmental: it does not, like an organism, develop progressively from birth to maturity; it does not grow and unfold like a seed growing into a tree, that however unique and unpredictable in detail, has a typical and predictable characteristic overall form. The

city.

We can agree, then, with Christopher Alexander, that 'a city is not a tree'.[2] Rather, a city may be likened to a forest, or, indeed, an ecosystem. A city, like an ecosystem, may appear to be a coherent whole in the sense of having a complex web of inter-relationships in which all components are ultimately inter-dependent. But, significantly, the parts are not subordinate to the whole. The individual components have their own agendas: these may be to some extent in co-operation, but they are also partly in competition. A city, like an ecosystem, can change over time in an open-ended manner; the end result is unknowable. There is no particular optimum equilibrium state to which it 'should' return to in resistance to forces of change. In other words, there is no final mature form towards which change is precipitated. In effect, urban change over time tends to be not so much developmental – like the unfolding of a whole according to a pre-envisaged blueprint – but may better be regarded as being *evolutionary*.

The evolutionary nature of cities

A city is evolutionary in the sense that urban change is gradual and incremental, adaptive, and ultimately transformative. While there is some continuity over time, there is no particular direction of progress, and the long term outcome is unforeseeable. A city may suddenly gain new extensions in new formats that are radical departures from what went before. There is no fixed functional or hierarchical order: a suburb may become the new centre; a new town may outperform an old city.

types of component – buildings, roads, transport modes, land uses, institutions, and so on. Each of these kinds of component may be said to evolve; indeed, these all co-evolve together.[3] Urban evolution, then, is the long term aggregate effect of these co-evolving components.

As with biological evolution, urban evolution can be seen as involving a combination of variation and selective retention. Urban plans and designs and codes and patterns are varied and copied and selected for further copying and variation. Unlike biological variation and natural selection, of course, in the urban context there will be deliberate purpose applied to individual instances of variation and selection. Nevertheless, the long-term adaptive effect is *emergent*: it cannot be anticipated from individual increments of design.[4] So, we make individual purposeful increments of intervention – to our buildings and streets and land uses and so on – but these do not follow a predictable developmental programme.[5]

The evolutionary perspective outlined here is advocated not primarily for any theoretical organic appeal, but because it seems to work. It seems to fit urbanism much better than the sometimes contrived analogy between a city and an organism: the evolutionary perspective still allows cities to be interpreted as 'organic', without this interpretation being burdened by the limitations of the city-as-organism metaphor. In a sense, the evolutionary perspective liberates the organic interpretation of cities from the corporeal constraint of the organism.

But beyond organic wordplay, the evolutionary perspective seems useful as it can relate directly to real-world concerns of cities: the realities of urban change, social co-operation, economic competition, environmental adaptation, and different kinds of planning and design intervention. Put another way, whereas the city-as-organism is something rather mysterious and

although an abstract concept is something that everyone tangibly participates in, just as we participate in the abstract entity we call 'society' when conversing with a neighbour, or participate in 'the economy' when shopping online, or participate in 'the environment', when building or adapting our homes or tending our gardens.

Learning from evolution

Evolution teaches us that tomorrow's optimal is probably an adapted version of today's: that is, not exactly the same as today's, but still recognisably a progression from it. That said, a key lesson from evolution is that while the immediate next step may be foreseeably an improvement, the long term optimal future is unknowable. With urban evolution there is no knowable long term target form that might be said to be in the direction of progress.

Therefore, traditional models of large-scale urban structure, whether monocentric cities or polycentric conurbations, may be useful starting points to build from, but are not sacrosanct as models for future long term targets. Moribund models of what cities and city regions used to be like could be just as dysfunctional as the monstrous novelties of Modernism. 'Neanderthal' urbanism is not necessarily better than 'Frankenstein' urbanism (although the former, at least, was viable once). Instead, we should allow existing cities to adapt, and urban hierarchies and relationships between centres and suburbs to fluctuate, if they are to be responsive and viable. This implies some degree of receptiveness to novelty.

That a city is not an organism with a definite preferred form, 'in equilibrium,' means that deviations from the normal do not necessarily mean aberrations or pathologies, like decayed

be innovative variations that could be the gateways to new future viable forms. Overall, the urban future is likely to contain – as ever – a combination of novelty and things retained: a mix of old urbanism, old Modernism, New Urbanism and new Modernism.

A challenge to New Urbanism

The evolutionary message here seems to have a direct resonance with one of two significant strands running through the New Urbanist agenda. This is the strand of New Urbanism that is perhaps closest to traditional urbanism: a respect for tried and tested urban formats; a sympathy with piecemeal growth and incremental renewal, and an appreciation of the adaptive effect whereby traditional urban forms seem to nestle organically within their physical and social contexts.

However, the New Urbanist agenda has a second significant strand, to do with the vision for what a contemporary city should be like: here, the image is of some kind of coherent metropolitan region, made up of a definite, preconceived structure of distinct cities, towns and neighbourhoods, perhaps with fixed types of zone in fixed locations. But this second strand does not necessarily follow from the first, especially in the contemporary context of modern democratic technological market economies such as the United States.

This is because an incremental, evolutionary, piecemeal, organic approach to urbanism is very likely – in the contemporary context – to lead to the very kind of chaotic 'sprawl' that the second strand of New Urbanism is trying to counteract. Put another way, in a democratic market economy, where people choose to live and work and access services where they will, enabled by

otherwise, the 'natural' or 'organic' outcome would be what we recognise as sprawl.[6]

Conversely, to impose a pre-determined hierarchical structure of definitely contrived neighbourhoods, towns and cities seems uncomfortably like the kind of top-down planning that was identified over forty years ago as part of the problem of Modernist planning, by the likes of Jane Jacobs in *Death and Life of Great American Cities* and Alexander in *A City is Not a Tree.* Jacobs and Alexander were not just arguing against the dysfunctional products of Modernism – the 'concrete jungles' and 'prairie planning' – but they were arguing against the technocratic processes that created them. And so, despite the apparent consensus within contemporary urbanism that endorses these classic arguments of Jacobs and Alexander, there is a sense in which their lessons have not been learned. We are still in danger of churning out simplistic, professionally contrived hierarchies of settlements and neighbourhoods, which may superficially resemble traditional urban structures but are not necessarily functional like traditional communities, nor fitting for today's societal realities.

Applications

This evolutionary interpretation is perhaps uncomfortable for urban planning, as it draws attention to the limitations of being able to target optimal urban form. That said, acknowledging the evolutionary nature of urbanism need not mean we abandon attempts to intervene in the urban system for the common good. The point is to understand how best to intervene, informed by the evolutionary realities of urbanism, instead of organic metaphors that imply that urban

professionals should be designing cities as if they intrinsically had optimal anatomies, or

interpretation of the 'urban organism.'

Recognising the evolutionary nature of urbanism does not mean accepting 'the law of the jungle' or a laissez-faire free-for-all. After all, just as humans can intervene in biological evolution through artificial selection, public authorities can intervene in urban evolution through mechanisms such as development control, to over-ride the 'natural selection' of the urban market-place, where appropriate.

Civic intervention need not just mean development control, but could include the proactive generation of codes. Codes can specify urban components – such as building type, land use, street type, and so on – and how these may relate to one another.[7] Code-based approaches could form the basis of a bottom-up system, supportive of the kind of organic urbanism implied by the spirit of *Death and Life* and *A City is Not a Tree.* They could also be compatible with Alexander and associates' *A Pattern Language*.[8] That said, any such urban patterns and processes would not be universal or 'timeless' – they would be expected to evolve over time, adapting to different contexts.

Paths beyond

Given the evolutionary nature of urbanism, we can expect New Urbanism itself to adapt and evolve in the future. In effect, New Urbanism faces a choice as to the emphasis given to the two identified strands: one that is more directed towards an incremental approach, that is closest to the processes of traditional urbanism, but which may in the contemporary context give rise to something rather chaotic and even sprawling; and an approach to replicating the large scale structures of traditional settlements and urban regions, that however implies processes that are more like conventional top-down Modernist planning (albeit with updated values and more

There is also a wider choice between New Urbanism settling for being a fashionable 'alternative' urbanism, a niche market of 'Nice Urbanism' where the movement is coherent and comfortable within itself, but only addressing part of the urban problem; or reaching out more to engage with issues tackled by the original town planning movement – issues of community in the widest sense, and the use of the land in the widest sense, and planning for the future in the widest sense – and become more like the 'New Planning'.

Ultimately, this becomes a matter of politics: to do with the role of the community or state in directing urbanism for the common good. It may not be knowable whether in the long run it is better to be more individualistic or collective, or, ultimately, how far we should go as a 'social' species. But in any case, evolution reminds us that our theories and practice must at least be workable with the world as it is: not as it was, and not just as we would like it to be.

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[1] [Reference to author's other work]. [2] Alexander, C. (1966) A city is not a tree, in *Design*, 206, 46–55. [3] Steadman, P. (2007) *The Evolution of Designs. Biological Analogy in Architecture and the Applied Arts,* 2nd edition. London and New York: Routledge; Ziman, J. (ed.) (2000) *Technological Innovation as an Evolutionary Process*. Cambridge: Cambridge University Press.

[4] See, for example: Johnson, S. (2001) *Emergence. The Connected Lives of Ants, Brains, Cities and Software.* London: Penguin; Batty, M. (2007) *Complexity in City Systems: Understanding, Evolution, and Design*, CASA working paper 117. London: Centre for Advanced Spatial Analysis. [5] Significantly, urban evolution is a continuous process that applies as much today as in the past. That is, evolutionary urbanism is not some rudimentary historic process that was supplanted by modern town planning. From an evolutionary perspective, traditional 'unplanned' urbanism, classical town planning, old Modernism and New Urbanism are all part of the same evolutionary game. They each, to different degrees, have some innovation or variation, and some selective retention or building on precedent. [6] Alex Marshall has said as much in *How Cities Work*; for example, in connection with the suburban 'city' of Silicon Valley, which can be interpreted as being as natural, vital and heterogeneous, in its own way, for its own day, as the Greenwich Village of Jane Jacobs' *Death and Life of Great American Cities*. Marshall, A. (2000) *How Cities Work. Suburbs, Sprawl and the Road Not Taken*. Austin: University of Texas press; Jacobs, J. (1962) *The Death and Life of Great American Cities.* London: Jonathan Cape. [7] Carmona, M., Marshall, S. and Stevens, Q. (2006) Design codes: their use and potential, in *Progress in Planning*, 65 (4) 209–289. While the urban components and their relationships are organised in a pre-envisioned manner, the overall outcome can be left open. The code may be set by the planning authority to ensure a basic compatibility and functionality, for the public good, but otherwise allowing individual freedom for incremental construction, with no target form necessarily prescribed at the urban scale. Shifting the units of planning and design to the level of streets and blocks is not only a technical matter but could have implications for the actors involved. In terms of professions, there could be a shift in the division of labour and creative control between planners and architects, code-writers and builders. But this could also extend to more proactive involvement of individual citizens as self-builders.

[8] Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I. and Angel, S. (1977) *A Pattern Language. Towns. Buildings. Construction.* New York: Oxford University Press.